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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Werner Groh et al.

Application No.: 09/619,531

Filed: July 19, 2000

For: LAMINATE INCLUDING TWO OR
MORE LAYERS OF ORGANIC
SYNTHETIC FILAMENT NON-
WOVENS AND GLASS FIBER
WEBS AND SCRIMS

) **MAIL STOP APPEAL BRIEF**

) Group Art Unit: 1771

) Examiner: Lynda Salvatore

) Appeal No.: N/A

APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This appeal is from the decision of the Primary Examiner dated July 2, 2004,
finally rejecting claims 1-12, 14 and 15, which are reproduced in the Claims

Appendix of this brief.

☒ A check covering the ☐ \$250.00 (2402) ☒ \$500.00 (1402)
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37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit
any overpayment, to Deposit Account No. 02-4800.

I. Real Party in Interest

Johns Manville International, Inc. is the real party in interest, and is the assignee of the present application.

II. Related Appeals and Interferences

The Appellants' legal representative, or assignee, does not know of any other appeal or interferences which will affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of Claims 1-11, 13, 14 and 15

Claims 1-11, 14 and 15 stand finally rejected; claim 13 is objected to. Claims 16-26 stand withdrawn from consideration on the merits.

IV. Status of Amendments

The Amendment filed October 4, 2004 pursuant to 37 C.F.R. §1.116 will be entered according to the Advisory Action mailed November 4, 2004.

V. Summary of Claimed Subject Matter

The claims on appeal are directed to a laminate of two or more layers, at least one layer being a non-woven layer composed of organic synthetic filaments, and at least one layer being a woven web or scrim composed of glass fibers (page 3, lines 15-20 of the specification). The layers are bound together by needling such that a part of the organic synthetic filaments penetrate through the laminate and emerge at the lower surface and lie adjacent thereto (page 4, lines 10-13). In one embodiment, two non-woven organic synthetic filament layers are used, one on each side of the woven glass fiber layer (page 4, lines 8-9).

An important aspect of the invention is that the woven web or scrim of glass fibers be pre-consolidated by a binding agent before needling (page 9, lines 11-16).

Another feature of the claimed laminate is the use of an acrylate or styrene binder to achieve final consolidation of the laminate (page 5, lines 14-22).

It is an important feature of the invention that needling of the layers is effected in such a manner that a part of the synthetic organic filaments penetrate through the laminate, emerge from the lower surface of the laminate and lie adjacent thereto. This feature serves to anchor and interlock the layers to one another as well as anchoring the final consolidation coating of acrylate or styrene binder to the laminate (note page 9, lines 20-24).

The claimed laminates are suitable for use as carriers and support material in the manufacture of bituminized roofing felts and membranes. The laminates of the present invention, by virtue of the fact that the needled layers are anchored and locked together, are more resistant to delamination, and have superior mechanical strength and fire-resistance in comparison to prior art products (page 8, lines 20-23 and page 10, lines 11-13 of the specification).

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3-11 and 13 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,616,395 to Baravian et al. in view of U.S. Patent No. 6,235,657 to *Schops* et al. and further in view of U.S. Reissue Patent No. 33,023 to *Hiers*.

Claim 2 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Baravian et al.* '395 in view of *Schops et al.* '657 and further in view of *Hiers* '023 as applied to claim 1 and further in view of U.S. Patent No. 5,171,629 to *Heidel et al.*

Claim 14 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Baravian et al.* '395 in view of *Schops et al.* '657 and further in view of *Hiers* '023 as applied to claim 11 and further in view of U.S. Patent No. 4,816,327 to *Binnarsley et al.*

Claim 15 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Baravian et al.* '395 in view of *Schops et al.* '657 and further in view of *Hiers* '023 as applied to claim 2 and further in view of U.S. Patent No. 5,571,596 to Johnson.

VII. Argument

A review of the disclosure of *Baravian et al.* '395 indicates quite clearly that there are at least three distinct features specified in appealed claim 1 that are not mentioned anywhere in the reference. These are:

- (1) the synthetic non-woven layer and glass fiber layer of the reference are not needled together such that a part of the synthetic filaments penetrate the laminate and emerge from the surface thereof and lie adjacent thereto;
- (2) the glass fiber layer of the reference is not pre-consolidated with a binding agent;
- (3) the formed laminate is not subjected to a final consolidation of any kind, let alone one using an acrylate or styrene binder.

The claimed laminates of the invention by virtue of these features exhibit excellent mechanical strength, dimensional stability and fire resistance and are highly resistant to delamination. The needling technique set forth in the claims provides effective anchoring (page 9, line 24) and serves to "interlock" the synthetic non-woven and glass fiber layers as well as the final layer of consolidation binder.

As a matter of fact, *Baravian et al.* '395 expressly teaches away from a final consolidation:

consolidation and thermostabilization take place only in the first layer and before assembly with the second layer "(column 6, lines 46-47, underlining added).

Despite this, the Examiner argues that it would have been obvious to finally consolidate the laminates of *Baravian et al.* '395 in view of *Schops et al.* '657. Appellants disagree for the following reasons.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The motivation to

modify the relied on prior art must flow from some teaching in the art that suggests the desirability or incentive to make the modification needed to arrive at the claimed invention. *In re Napier*, 55 F.2d 610, 613; 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1985). Obviousness cannot be established by modifying the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the modification. *In re Geiger*, 815 F.2d 686, 688; U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987).

No motivation exists in the cited art to finally consolidate the laminates of *Baravian et al.* '395 using any binder, let alone a styrene or acrylate. To do so would be contrary to the express teachings of the reference and would likely render the laminates unfit for their intended purpose. "The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also teachings which would lead such a person away from the claimed invention. See *In re Lunsford*, 53 CCPA 986, 357 F.2d 380, 148 U.S.P.Q. 716 (1965)."

The second element of a proper rejection under §103(a) is a reasonable expectation of success. An express objective of *Baravian et al.* '395 is to avoid surrounding the glass fiber layer with synthetic layers which would adversely affect the fire resistant properties of the laminate (column 2, lines 9-15). A final consolidation with resin binder would coat the glass fiber layer, a result directly contrary to the stated objective of the reference and one which would be expected to adversely affect the properties desired by the patentees. Thus, there would be no reasonable expectation of success, i.e., modifying *Baravian et al.* '395 in the manner suggested in the Office Action would be detrimental to the desired properties of the laminates thereof.

Moreover, Appellants point out that the laminates of *Baravian et al.* '395 must be at least adhesively bonded and when the glass layer is a grid or cloth, the layers must also be needled or seam knitted (column 2, lines 50-52; claim 1, last four lines). No specific needling conditions or techniques are disclosed in the reference. The working examples only employ adhesive bonding.

According to the Examiner, it would have been obvious in view of *Hiers* '023 to needle the two layers employed in the laminates of Bavarian et al. '395 in such a manner that a part of the synthetic filaments penetrate the surface of the laminate and lie adjacent thereto. Appellants disagree with this position which is clearly based on a hindsight reconstruction of the cited art. The needling operation described in *Hiers* '023 does not result in a part of the organic synthetic fibers penetrating the laminate surface to lie adjacent thereto as specified in the present claims. This is evident from reviewing Figures 1 and 2 of the reference. In the needling technique of *Hiers* '023, the inner surfaces are tightly bound while the outer surfaces are undisturbed. Thus, even if one uses the needling technique of *Hiers* '023 to bind the layers of *Baravian et al.* '395, the resultant laminate would not have the features recited in the present claims.

The Examiner stated in the Final Rejection that "no specific needling technique is set forth in claim 1" (page 4, lines 15-16). Appellants strongly disagree and point out that claim 1 clearly recites a structural feature, i.e., part of the organic synthetic filaments penetrate through the laminate and emerge at the lower surface of the laminate and lie adjacent thereto. This feature is important in attaining the objective of the invention, i.e., a laminate where the needling acts to interlock the individual layers and anchor the binder used in the final consolidation. The Examiner argued in the Final Rejection that applicant "has not recited such limitations" (page 4, last line). Appellants point out that the features which provide the advantages of the invention are recited in the claims and must be considered in assessing patentability.

The Final Rejection acknowledges that *Baravian et al.* '395 does not disclose final consolidation with a binder but relies on *Schops et al.* '657 to supply this deficiency. Appellants submit that the use of a final consolidation binder in the laminates of *Baravian et al.* '395 would be contrary to the express teachings of the reference which clearly indicates that only the non-woven synthetic layer should be pre-consolidated; note column 6, lines 46-47. To do otherwise would render the laminates of *Baravian et al.* unfit for the intended purpose.

Moreover, the laminates described in *Schops et al.* '657 require three layers as opposed to the two-layered laminates of *Baravian et al.* '395. According to the

latter, three-layered laminates are unsatisfactory for their purpose because the fire-screen (i.e. glass fiber layer) is between the synthetic fiber layers whereas it should be a surface layer (column 3, lines 9-15 of Baravian et al. '395). Those of ordinary skill would not be motivated to modify the invention of Baravian et al. '395 as suggested in the Office Action because to do so would render patentees' invention inoperative for this purpose. As stated in Section 2143.02, M.P.E.P.: "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification" (page 2100-127, Rev. 1 Feb. 2003).

Baravian et al. '395 indicates quite clearly that only the synthetic fiber layer should be consolidated. No motivation exists for a final consolidation with binder resin since to do so would be contrary to the disclosure of the reference and likely to adversely affect the laminate properties desired by patentees, i.e., an uncoated outer layer of glass fibers. Thus, there would be no reasonable expectation that the use of an additional layer of synthetic fibers and a final consolidation with binder resin would be successful in providing improved properties without adversely affecting the characteristic desired by the patentees.

Moreover, Schops et al. '647 does not disclose needling the layers such that a part of the synthetic filaments pass through the laminate and emerge at the lower surface of the laminate and lie adjacent thereto.

With respect to claims 11 and 14, the Examiner contends that it would have been obvious to modify the laminate of Baravian et al. '395 to include an additional layer in view of the disclosure of Schops et al. '657. Appellants respectfully disagree and point out that Baravian et al. '395 expressly teaches away from sandwiching the glass fiber layer between organic fiber layers; note column 2, lines 9-15 ("which arrangement is exactly to be avoided"). If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no motivation to make the proposed modification (M.P.E.P. §2143.01, pg. 2100-126, Feb. 2003). Quite clearly, adding an additional synthetic fiber layer to the laminate of Baravian et al. '395 would isolate the glass fiber fire-retardant layer. This is exactly the arrangement which the reference states is to be avoided.

In summary, Appellants respectively submit that *Baravian et al.* '395 does not disclose or suggest a laminate having a woven web or scrim of glass fibers pre-consolidated by a binding agent, wherein the woven web or scrim of glass fibers is needed to a non-woven layer of synthetic organic fibers such that a part of the organic fibers penetrate through the layers of the laminate and emerge from the lower surface of the laminate and lie adjacent thereto, and where the laminate is finally consolidated by using an acrylate or styrene binder. All these features serve to provide a laminate having superior mechanical strength and fire retardance and being resistant to delamination of the layers.

It would not have been obvious to pre-consolidate the glass fiber layer of *Baravian et al.* '395 and to finally consolidate the laminate because to do so would be contrary to the expressed intent of the reference and would likely render the laminate incapable of achieving the objectives of the reference as discussed in column 6, lines 31-52 of *Baravian et al.* '395.

Hiers '023 fails to disclose a process of needling layers together where some of the organic synthetic fibers penetrate through the laminate and emerge from the lower surface and lie adjacent thereto. Thus, even if the disclosure of *Baravian et al.* '395 and *Hiers* '023 would be combined, the resultant needled laminate would not meet the limitation of the present claims.

For at least these reasons, the §103(a) rejection of claims 1, 3-11, 14 and 15 is unsound and should be reversed.

With respect to the §103(a) rejection of claim 2, since *Baravian et al.* '395 does not contemplate pre-consolidation of the glass fiber layer, there would have been no motivation to use the binders disclosed in *Heidel et al.* '629 for pre-consolidation. Moreover, the glass fiber layer of *Heidel et al.* '629 is a non-woven. In any event, *Heidel et al.* '629 does not supply the aforementioned deficiencies in the basic combination of *Baravian et al.* '395, *Schops et al.* '657 and *Hiers* '023. Accordingly, the rejection of claim 2 is unsound and should be reversed.

Claim 14 is dependent upon claim 11 and includes all the features of claims 1, 11 and 14. *Binnarsley et al.* '327 discloses the manufacture of woven fabrics using a weft tape. Even if there would have been motivation to modify the glass fiber layer of

the laminates of *Baravian et al.* '395 to include a weft tape, the resultant laminates still would not have all the features of claim 14. Accordingly, Appellants submit that the rejection of claim 14 is unsound and should be reversed.

With respect to claim 15, *Johnson* '596 has been applied because it allegedly discloses the feature of claim 15. The disclosure of the patent does not supply any of the deficiencies of the basic §103 rejection which relies on the combination of *Baravian et al.* '395, *Schops et al.* '657 and *Hiers* '023 for at least the reasons enumerated above. Accordingly, the §103 rejection of claim 15 is unsound and should be reversed.

VIII. Claims Appendix

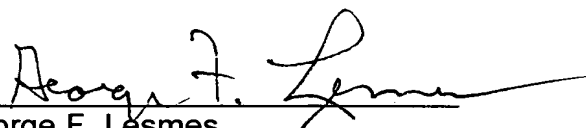
See attached Claims Appendix for a copy of the claims involved in the appeal.

Respectfully submitted,

Burns, Doane, Swecker & Mathis, L.L.P.

Date January 31, 2005

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VIII. CLAIMS APPENDIX

The Appealed Claims

1. A laminate of two or more layers, comprising:

at least one organic synthetic filament non-woven layer, and at least one woven web or scrim of glass fibers pre-consolidated by a binding agent,

said at least one synthetic non-woven and said at least one woven web or scrim are bound by needling such that a part of the organic synthetic filaments penetrate through the laminate and emerge at the lower surface of the laminate and lie adjacent thereto; and

wherein the formed laminate is subjected to a final consolidation by an acrylate or a styrene binder.
2. The laminate according to Claim 1, wherein the binding agent is selected from the group consisting of polyvinylacetate, starch, urea and melamine.
3. The laminate according to Claim 1, wherein said synthetic filaments are heat shrunk.
4. The laminate according to Claim 1, wherein said synthetic filaments are thermally pre-consolidated by calendering.

5. The laminate according to Claim 1, wherein said synthetic filament non-woven layer is pre-consolidated by needling.

6. The laminate according to Claim 1, wherein said synthetic non-woven layer and said woven web or scrim are bound by needling having 30 - 50 stitches/cm².

7. The laminate according to Claim 1, wherein said laminate, comprises about 5 to 35 weight percent acrylate or styrene binder based on the total weight of synthetic filament non-wovens and the glass woven web or scrim for final consolidation.

8. The laminate according to Claim 1, wherein said laminate, comprises about 14 to 18 weight percent acrylate or styrene binder based on the total weight of synthetic filament non-wovens and the glass woven web or scrim for final consolidation.

9. The laminate according to Claim 1, wherein said laminate is produced at a small draft in the needle machine.

10. The laminate according to Claim 9, wherein, said draft is from about 0 - 13 mm/stroke.

11. The laminate according to claim 1, wherein the laminate includes two synthetic non-woven layers and a glass containing woven web, wherein the glass woven web includes weft and warp yarns, the titer of which differs by at least a factor of 2.

12. The laminate according to Claim 1, wherein the laminate comprises at least two layers of the synthetic non-wovens which are not pre-consolidated.

13. The laminate according to Claim 1, wherein said glass woven web includes continuous glass filaments as warp yarns and glass staple fiber yarns as weft yarns.

14. The laminate according to Claim 11, wherein the weft yarns are tapes.

15. The laminate according to Claim 1, wherein the woven web or scrim contains glass fibers of E, C, mixtures thereof and ECR fibers.